BOTANICAL MUSEUM LEAFLETS
HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, OCTOBER 10, 1934 VOL. 3, NO. 2

A CONTRIBUTION TO OUR KNOWLEDGE OF THE ORCHIDS OF SPANISH HONDURAS PART II

BY
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I. HABENARIEAE.

THE HABENARIEAE and associated genera are characterized by a persistent anther adnate to the column by a broad base and differ from all other orchids in having the caudiculae produced from the base of the pollinia. They belong to the Basitonae-Ophrydinae of Pfitzer's system of classification.

The Basitonae-Ophrydinae with few exceptions African and Eurasian in distribution comprise about fifty genera.

In Central America the Habenarieae, as limited by Bentham and Hooker, are represented by a single genus that includes approximately twenty-six species. Ten of these species are natives of Honduras. It is highly probable that additions will be made as exploration continues, because in Guatemala, a region with a flora comparable to that of Honduras, about sixteen species of Habenaria have been found.

The Habenarieae are essentially an Old World group whether taken in a conservative sense to include the genera admitted by Bentham and Hooker (*Genera Plantarum* 3 (1883)), or in a more liberal sense to include the

genera recognized by Pfitzer (in Engler and Prantl: *Die natürlichen Pflanzenfamilien*), or by Schlechter (in *Notizbl. Bot. Gart. u. Mus. Berl.* 9).

Bentham and Hooker admitted as valid genera, Arnottia *A.Rich.*, Bartholina *R.Br.*, Bicornella *Lindl.*, Bonatea *Willd.*, Cynorchis *Thou.*, Diplomeris *D.Don*, Glossula *Lindl.*, Habenaria *Willd.*, Hemipilia *Lindl.*, Herminium *L.*, Holothrix *L.C.Rich.*, Huttonaea *Harv.* and Stenoglottis *Lindl.* Of these genera only Habenaria is represented in the American flora. Pfitzer, however, regarded Habenaria, as limited by Bentham and Hooker, to be a conglomerate concept and he withdrew from it and returned to generic standing Barlaea *Reichb.f.*, Coeloglossum *Hartm.*, Deroemera *Reichb.f.*, Gymnadenia *R.Br.*, Montolivaea *Reichb.f.*, Nigritella *L.C.Rich.*, Perularia *Lindl.*, Platanthera *L.C.Rich.*, Ponerorchis *Reichb.f.*, and Roeperocharis *Reichb.f.*, to which genera Schlechter later added Blephariglottis *Raf.*, Gymnadeniopsis *Rydb.*, and Leucorchis *E.Mey.* Whatever view finally prevails with regard to the number of genera to be accepted as valid concepts, the point of chief interest for the student of Central American orchids is that the genera of the Habenaria alliance are overwhelmingly Eurasian and African and that Habenaria and Platanthera (the only Central American representatives of this alliance) are found in the Old World as well as in the New World.

Habenaria *Willd.*

The Honduranian representatives of this genus belong to the section characterized by protuberant stigmas. They are terrestrial or rarely subaquatic and, with few exceptions, have greenish flowers.

KEY TO THE SPECIES

a. Labellum simple, not tripartite

b. Ovary conspicuously winged with the wings minutely papillose on the edges

1. *H.alata* Hook.

b. Ovary not conspicuously winged

c. Labellum rounded at the base; spur shorter than or equal to the ovary

4. *H.eustachya* Reichb.f.

c. Labellum unidentate or sharply angled on each side at base; spur longer than the ovary

7. *H.odontopetala* Reichb.f.

a. Labellum tripartite

d. Spur at least 4 cm. long

e. Flowers few, rarely more than five

10. *H.setifera* Lindl.

e. Flowers numerous in a dense raceme

8. *H.Pringlei* B.L.Robins.

d. Spur considerably less than 4 cm. long

f. The longest leaf more than five times longer than broad, oblong

9. *H.repens* Nutt.

f. The longest leaf rarely four times longer than broad, narrowly or broadly elliptic

g. Flowers white, lateral segments of the labellum about equalling the middle segment

2. *H.clypeata* Lindl.

g. Flowers prevailingly green, lateral segments of the labellum exceeding the middle segment

h. Mid-nerve of the sepals, segments of the labellum and anterior segment of the petals papillose

3. *H.crassicornis* Lindl.

h. Sepals, labellum and petals smooth

i. Spur less than 1 cm. long

5. *H.hondurensis* Ames

i. Spur more than 1 cm. long

6. *H.novemfida* Lindl.

1. Habenaria alata *Hooker*, Exotic Flora 3 (1826) t. 169.

Habenaria stricta A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 29; Ames, Orch. 4 (1910) t. 78, fig. II.

Habenaria platantheroides Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2 (1918) 372.

The Honduranian specimen which I have referred to *Habenaria alata* Hook. differs from the type in having a simple labellum without a trace of basal protuberances or lobes. In this regard it resembles the Mexican *H. stricta* A. Rich. & Gal. and the Costa Rican species for which Schlechter proposed the name *H. platantheroides*. In recent studies of the Middle American Habenarias I have become convinced that in the recognition of segregates from *H. alata* the form of the labellum has been relied on too much and specific rank assigned to plants hardly entitled to recognition as varieties, *H. stricta* and *H. platantheroides* being in this category. Unfortunately the identity of *H. stricta* is revealed only through analytical drawings preserved in the herbarium of the Muséum d'Histoire Naturelle in Paris. The dried specimen has disappeared and in its absence the analytical drawings are the only evidence on which to interpret the original description and to form a conception

of the species.

Habenaria alata is widespread and polymorphic. It is common in the West Indies and has appeared again and again in collections received from Mexico, Guatemala, Salvador, Costa Rica, Panama and South America. The narrowly lanceolate, obliquely ascending leaves; the conspicuously winged ovary with the edges of the wings minutely papillose, and the more or less connivent sepals with minutely papillose margins, are constant characters. The labellum, however, is variable. Commonly it has a triangular protuberance on each side near the base. Sometimes these protuberances are so strongly developed that they give to the labellum a three-lobed appearance, but frequently they are so much reduced that they become inconspicuous or obsolete. Lacking other substantial differences, the absence from the labellum of lateral protuberances is a trivial characteristic by which to segregate species.

Department of Comayagua, North of Siguatepeque. Terrestrial in open pine forest at 3,400 feet altitude. October 6, 1932. *Edwards 280.*

Illustration: 1, flower drawn with the aid of the camera lucida, enlarged about two times. 2, flower drawn with the lateral sepals spread apart. 3, labellum, spur and column, drawn with the aid of the camera lucida, enlarged about four times. 4, a section taken from the margin of a sepal to show papillose character. 5, petal about four times life-size. *Drawn July 1934 from flowers of Edwards 280 by* Blanche Ames.

2. Habenaria clypeata *Lindley*, Gen. & Sp. Orch. Pl. (1835) 311.

Habenaria lactiflora A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 28.

The specimens referred to *H. clypeata* are perplexing because several of them approach the type of *H. lactiflora*. The lateral segments of the labellum are basal or sometimes, together with the mid-lobe or middle segment, separated from the base of the labellum by a well-devel-

EXPLANATION OF ILLUSTRATION

HABENARIA CLYPEATA *Lindl.* Flower enlarged, about twice natural size, drawn from flowers of *Edwards 184* preserved in alcohol. The labellum with its conspicuous claw below the lateral segments represents the variant formerly referred to *H. lactiflora.*

HABENARIA CRASSICORNIS *Lindl.* Plant natural size, drawn from a dried specimen of *Edwards 206.* Flower enlarged, about twice natural size, drawn from a flower of *Edwards 477* preserved in alcohol.

HABENARIA EUSTACHYA *Reichb.f.* Flower enlarged, about twice natural size, drawn from a flower of *Edwards 592* preserved in alcohol.

HABENARIA NOVEMFIDA *Lindl.* Flower enlarged, about twice natural size, drawn from a flower of *Edwards 488* preserved in alcohol.

HABENARIA ODONTOPETALA *Reichb.f.* Flower enlarged, about twice natural size, drawn from a flower of *Edwards 483* preserved in alcohol.

HABENARIA REPENS *Nutt.* Two flowers enlarged, about twice natural size, drawn from flowers of *Edwards 386* preserved in alcohol.

HABENARIA SETIFERA *Lindl.* Plant natural size. Flower about one third larger than natural size, drawn from a flower of *Edwards 203* preserved in alcohol.

Drawn July 1934 by BLANCHE AMES


crassicornis
setifera
clypeata
novemfida
eustachya
odontopetala
repens
A 1934

HABENARIA

oped claw and are either shorter than or about equal to the mid-lobe. In ORCHIDACEAE 4 (1910) 240, I directed attention to the lack of satisfactory characters separating *H. clypeata* from *H. lactiflora*. The place of origin of the lateral segments of the labellum had to be relied on for specific distinction; the lateral segments being basal or nearly so in *H. clypeata* and conspicuously above the base of the labellum in *H. lactiflora*. The Honduranian specimens indicate that this is a very weak distinction and also indicate that the point of origin of the lateral segments of the labellum is a doubtful guide to specific separation.

Habenaria spithamaea Schltr., a native of Guatemala, is probably a variant of this species.

Habenaria clypeata is rare and heretofore has been known only from Mexico and Guatemala.

DEPARTMENT OF COMAYAGUA, San Luis. Terrestrial in pine forest at 4,200 feet altitude. Flowers white. June 10, 1932. *Edwards 184*: Jicarito. Terrestrial in boggy ground at 2,000 feet altitude. Flowers white. July 24, 1933. *Edwards 462*.

3. Habenaria crassicornis *Lindley*, Gen. & Sp. Orch. Pl. (1835) 311.

Habenaria adenantha A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 28.

The Honduranian specimens which I have referred to *Habenaria crassicornis* differ from the type in having the segments of the labellum and petals inconspicuously papillose. At most there are papillose protuberances at the base of the anterior segments of the petals and at the base of the lobes of the labellum. The mid-nerve of the sepals, and the ovaries, on the other hand, are conspicuously papillose.

I suspect that *Habenaria quinquefila* Schltr., a native of Guatemala, is a very close ally of *H. crassicornis* and doubtfully separable from it.

Habenaria crassicornis is also a native of Mexico and Guatemala.

Department of Tegucigalpa, San Juancito. In cloud-forest at 5,000 to 6,000 feet altitude. 1931. *Edwards 23*: La Segobia. Terrestrial at 3,000 feet altitude. Flowers light olive. September 17, 1931. *Edwards 34.*

Department of Comayagua, Temagua. Terrestrial in wet ground in open forest at 2,000 feet altitude. Sepals and spur pea-green, petals labellum and column white. August 5, 1933. *Edwards 477*: Minas de Oro. Terrestrial in mountain-forest at 4,500 feet altitude. Sepals and petals green, labellum brown. July 9, 1932. *Edwards 206.*

4. Habenaria eustachya *Reichenbach filius* in Ber. Deutsch. Bot. Gesell. 3 (1885) 274.

This is a widely distributed species which has been found in Mexico, Guatemala and the West Indies.

Department of Cortes, Santa Cruz de Yojoa. Terrestrial in soggy ground at 2,000 feet altitude. Flowers green. November 14, 1933. *Edwards 592.*

5. Habenaria hondurensis *Ames, sp. nov.*

Herba terrestris e tubere carnoso ovoideo enata. Caulis erectus, bene foliatus, internodiis abbreviatis. Folia anguste elliptica, acuta vel obtusa. Bracteae inflorescentiae foliaceae. Racemus cylindraceus, elongatus, multiflorus. Pedicellus cum ovario valde alato oblique adscendens. Sepala lateralia inaequaliter lanceolata, margine papillosa, apice cymbiformia, rostrata, nervo medio carinata. Sepalum dorsale valde concavum, ovatum, acutum, trinervium. Petala bipartita, partitionibus valde inaequalibus; posteriore anguste oblonga; anteriore subulata, valde elongata. Labellum tripartitum, lacinia intermedia lineari-oblonga, acuta, trinervia, laciniis lateralibus filiformibus, valde elongatis. Columna generis.

Terrestrial herb 24.5–31 cm. tall from an ovoid tuberoid 1.5–2 cm. long. Leaves 3.5–7 cm. long, 1.2–2.6 cm.

wide, about five in number, alternate, loosely sheathing the stem, narrowly to broadly elliptic, acute or obtuse, diminishing above into narrowly lanceolate, acute bracts. Raceme slender, 9–12 cm. long, 1.5–2.5 cm. in diameter, bearing twenty to thirty or more greenish flowers. Bracts of the raceme 0.5–1 cm. long, ascending, equalling or shorter than the pedicellate ovary, narrowly lanceolate, acuminate, acute. Pedicellate ovary about 1 cm. long, obliquely ascending, conspicuously alate with the edges of the alae papillose. Flowers about 5 mm. apart in the raceme. Lateral sepals 5 mm. long, 1.5 mm. wide, asymmetrically lanceolate, cymbiform at the apex with the mid-nerve prominent on the outer surface and produced into a rostrate point. Dorsal sepal similar, 5 mm. long, 3–4 mm. wide, ovate, acute, strongly concave, 3-nerved. Petals bipartite with the posterior segment 4–5 mm. long, 0.75–1 mm. wide, narrowly oblong, acute, 1-nerved through the middle with a supplementary nerve arising as a branch from the nerve of the anterior segment; anterior segment 7 mm. long, filiform, erect. Labellum tripartite, lateral segments 8–9 mm. long, filiform; middle segment 5 mm. long, scarcely 1 mm. wide, linear-oblong, 3-nerved, acute. Spur pendent, 8 mm. long, hardly inflated below the middle, cylindrical. Stigmatic processes prominent, semi-ovoid.

Closely allied to *Habenaria tetranema* Schltr., a Guatemalan species, from which it differs conspicuously in the shorter spurs and in the aspect of the foliage. From *H. novemfida* Lindl., it is easily distinguishable in having much smaller flowers in more slender racemes.

Department of Comayagua, Vicinity of Siguatepeque (El Achote). Terrestrial in open mountain-forest at 3,900 feet altitude. Flowers pea-green. September 27, 1932. *Edwards 267*. (Type in Herb. Ames No. 40088.)

6. Habenaria novemfida *Lindley* in Bentham Pl.

EXPLANATION OF ILLUSTRATION

HABENARIA HONDURENSIS *Ames.* Plant drawn natural size with the aid of the camera lucida. 1, flower enlarged four times, front-view. 2, flower enlarged four times, side-view; anterior segments of the petals not fully developed. 3, petal enlarged five and one-half times. Figures 1, 2 and 3 drawn from the type with the aid of the camera lucida.

Drawn from dried specimens July 1934 by
BLANCHE AMES

HABENARIA *hondurensis* Amals

Hartweg. (1842) 94.

Habenaria diffusa A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 28.

The specific name is misleading and rests on an error in observation. Lindley described the petals as being trifid, hence the petals and labellum would constitute a nine-lobed corolla. In 1910 the type was restudied and the petals were found to be bipartite.

Habenaria novemfida is also a native of Mexico, Guatemala and Salvador.

Department of Yoro, La Concepción. Terrestrial in boggy ground in dense forest at 2,500 feet altitude. Flowers green. August 13, 1933. *Edwards 488.*

7. Habenaria odontopetala *Reichenbach filius* in Linnaea 18 (1844) 407.

This is a widespread species ranging, without apparent change of character, from Florida to the West Indies, Mexico, and Guatemala.

Habenaria Selerorum Schltr., a native of Guatemala, is a very close ally of *H. odontopetala* and may prove to be inseparable from it. *H. Jimenezii* Schltr., a native of Costa Rica, resembles very closely *H. odontopetala*, and should be regarded with suspicion until more material has been studied.

Department of Yoro, La Concepción. Terrestrial in wet ground at 2,500 feet altitude. Flowers green. August 9, 1933. *Edwards 483.*

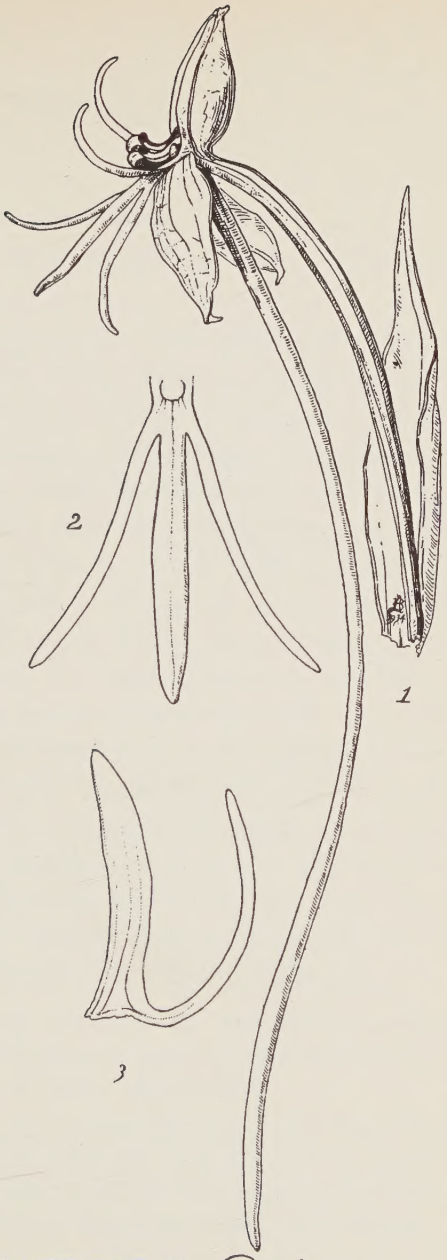
8. Habenaria Pringlei *B. L. Robinson* in Proc. Amer. Acad. 27 (1892) 184.

This species ranges from the state of San Luis Potosi in Mexico through Guatemala to Honduras. The sepals are 1.5 cm. long and the divisions of the labellum may exceed 2.5 cm. in length. The extraordinarily large flowers are white and make this species one of the most showy of the genus. It differs from the closely related *H. mac-*

EXPLANATION OF ILLUSTRATION

HABENARIA PRINGLEI *B. L. Robinson.* 1, flower natural size drawn from a Mexican specimen with the aid of the camera lucida. 2, labellum, spur removed, about twice enlarged. 3, petal about twice enlarged.

Drawn August 1934 by BLANCHE AMES



HABENARIA *Pringlei*

roceratitis Willd. in the narrower leaves. The spur varies conspicuously in length, being hardly 5 cm. long in some of the Guatemalan forms.

Department of Santa Barbara, San Pedro Sula. Las aranales in laguna. March 24, 1889. *Carl Thieme 739.* (No. 5552 of John Donnell Smith's distribution).

9. Habenaria repens *Nuttall,* Gen. No. Amer. Pl. 2 (1818) 190.

This is one of the most common and widely ranging species of Habenaria. It has been reported from the southern United States (North Carolina to Florida), Mexico, British Honduras, Guatemala, Nicaragua, Costa Rica, Panama, the West Indies and South America.

A striking peculiarity of this species is its adaptation to life in wet places. Again and again it is reported as being associated with aquatic plants or floating vegetation. Mr. Edwards found his specimens associated with floating plants in Lake Yojoa or in very wet ground. In Hooker's Icones Plantarum, ser. 4, 7 (1901) t. 2686, R. A. Rolfe referred to it as being aquatic or subaquatic, and in The Plant World 6 (1903) 165, Roland M. Harper reported it from Georgia where he found specimens supported on floating masses of the water-hyacinth (*Eichhornia crassipes*) in water six feet deep. In response to its adaptation to wet surroundings, *H. repens* develops a copious root-system without tuberoids.

Department of Comayagua, Pito Solo, Lake Yojoa. On floating masses of water-weeds and grass at 2,000 feet altitude. Flowers light green. August 24, 1932. *Edwards 89.*

Department of Cortes, El Jaral, Lake Yojoa. On floating islands of water-plants at 2,000 feet altitude. Flowers green. October 30, 1932. *Edwards 306*; Terrestrial on marshy ground at 2,000 feet altitude. Flowers green. March 21, 1933. *Edwards 386.*

10. Habenaria setifera *Lindley* in Ann. & Mag. Nat. Hist. 4 (1840) 381.

Habenaria spathacea A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 29.

The type of *H. setifera* was collected in Mexico by Hartweg. Dr. Schlechter reported this species as being also a native of Costa Rica.

Habenaria Endresiana Schltr. (in Fedde Repert. Beihefte 19 (1923) 272) is a closely allied Costa Rican species differing so slightly from *H. setifera* that its distinctness is open to suspicion.

Department of Comayagua, Minas de Oro. Terrestrial in open mountain-forest at 4,200 feet. Flowers light green or nearly white. July 4, 1932. *Edwards 203*: San Luis. Terrestrial at 4,000 feet altitude. Sepals light green, petals and labellum white. September 19, 1931. *Edwards 56*.

Reprinted January 1965.